

In the Claims

Please amend claims 1-4 and add new claims 5-11 as indicated below. This listing of claims supersedes all prior listings.

5 1. (~~amended~~ Currently amended) A method of capturing spectral energy content of an image, the method comprising:

a. segmenting the image into an array of pixels, each pixel of the image having an electromagnetic spectral energy function;

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b. for each pixel of the array,

(i) dispersing spectral energy therefrom into resolved spectral components in a continuous spectrum of interest, such resolved spectral components having a distribution across the entire spectrum typified by an output from a diffraction grating; and

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(ii) determining an amplitude value for each of the resolved spectral components.

2. (~~amended~~ Currently amended) A method according to claim 1, wherein the spectral energy content is that of light and determining an amplitude value includes using a spectrophotometer.

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3. (~~amended~~ Currently amended) A method according to claim 2, wherein using the spectrophotometer includes using a linear array of photo-detectors in the spectrophotometer to evaluate the amplitude value for each of the resolved spectral components.

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4. (~~amended~~ Currently amended) A method according to claim 1, wherein dispersing spectral energy includes using a diffraction grating and using the grating includes modulating it to detect smaller wavelength bandwidth by jittering or stressing the grating.

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5. (new) A method according to claim 1, wherein dispersing spectral energy includes using a diffraction grating.

6. (new) A method according to claim 1, wherein the spectral energy content is in the x-ray region.

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7. (new) An apparatus for capturing spectral energy content of an image, the apparatus comprising:

a. a device that segments the image into an array of pixels, each pixel of the image having
10 an electromagnetic spectral energy function;

b. for each pixel of the array,

(i) a diffraction grating that disperses spectral energy from such pixel into resolved spectral components in a spectrum of interest; and

15 (ii) a spectrophotometer that determines an amplitude value for each of the resolved spectral components.

8. (new) An apparatus according to claim 7, wherein the device that segments the image includes a fiber optic bundle.

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9. (new) A method according to claim 7, wherein the spectrophotometer includes a linear array of photo-detectors.

10. (new) A method according to claim 7, further comprising:

25 a modulator that modulates the diffraction grating to detect smaller wavelength bandwidth by jittering or stressing the grating.

11. (new) A method according to claim 7, wherein the spectral energy content is in the x-ray region.

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